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THE TWO P's IN THE PLEASURE AND PROFIT OF COLD FRAMES

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The Two P's

Or the pleasure and profit of cold frames and hot beds. It concerns their construction, the flowers and vegetables that can be grown in them and how to get started. It sets forth their gains and advantages

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Greenhouse Designers and Builders

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A Bit About Frames in General

Our Reason

IN this little booklet we intend answering some of the queries that are constantly put to us about the possibilities of cold frames. The cold frame business is partly an advertisement with us. We make them so thoroughly and of such durable materials that the money-making end is out of the question; but we do know that many of our customers become so enthusiastic over cold frame results that they want to go still further and own a practical little greenhouse, giving them a glass enclosed garden where perpetual summer exists, yielding the endless joys of favorite flowers and even melons and cucumbers for Christmas. So when they do want a greenhouse, if they have already known our cold frames, they will come to us.

To Set You Straight

Perhaps there is some little confusion in the terms "cold frames" and "hot beds." Cold frames are those warmed by the sun only; hot beds by an under bed of manure giving heat by its fermentation.

Cold Frames

Cold frames and hot beds are really sort of small greenhouses and not half the people know their possibilities, or that they will yield bountiful returns every month in the year. So many hold the idea of their being limited to growing lettuce, radishes or getting a month or so's start of your neighbor in fine stocky tomato plants, or growing ready to bloom pansies.

Cold Frames filled with newly transplanted violets. The slatted frames to the left show the best way of shading. Further along in the garden, beside the north fence, are six more frames with Swiss chard, lettuce and radishes. The radishes will be ready in another week (Oct. 30), lettuce and chard in three weeks.

Storage Frames of Wm. McCleary, Amsterdam, N. Y. They are six feet deep, with masonry walls. Here he protects through the cold months hydrangeas, dormant roses, semi-hardy palms and many other plants that beautify his stoops and grounds during the Summer. In the upper end violets are raised all the winter through. The slat frame you see leaning against the sash is used to shade the violets the first few weeks after transplanting.

Hot Beds

NOW, there are many different ways of using frames, but the construction is practically the same, only in the case of hot beds it is necessary to have a sub frame which contains the manure.

Sub Frames

We make durable sub frames of 2-inch lumber with strong corner posts. As every hot bed requires sub frames, it's more convenient to order them with sash and other frames, and have them arrive at your place the same time and be all ready to set up. (See prices on page 21.)

Storage Frames

Storage pits are made from 4 to 6 feet deep, either of stone or brick. Here are stored through the cold months dormant roses, hydrangeas and such semi-hardy plants, keeping them strong and healthy, ready to start right off in the early spring, so adding to the immediate beauty of your grounds and giving that satisfaction which comes with having defeated nature in her annual autumn tour of destruction.

All the Year

WE know a lot of people who with just a simple cold frame — which is used part of the year as a hot bed — have lettuce, radishes, parsley, pansies, violets and many other things, pretty much all the year 'round. When the gray, tedious winter is in full grasp, crispy lettuce and appetizing radishes make one forget disagreeable things.

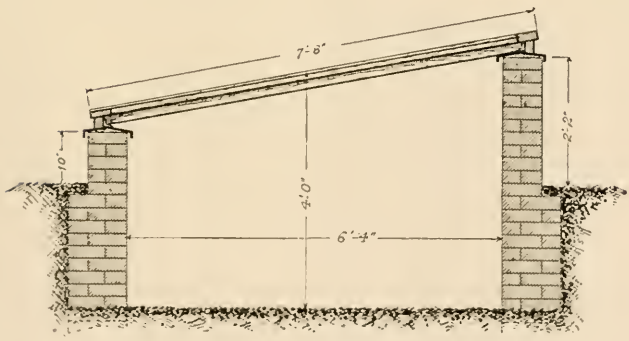
Greens

One of our cold frame friends has Swiss chard greens from June to June. He says not half the people who grow things know what Swiss chard is; but it's only one of the beet family gone to head. A sort of "cut and come again" greens.

Do it Yourself

If you are going into this thing in a modest way at the start, then get all the joy you can by doing pretty much the whole work yourself. To dig in them, watering and enriching the growing things, gathering the rewards of your labor, and finally bringing with it all that unalloyed something — (be it pleasure, the knowledge of having wrested treasures from nature against her will, or what), which repays many times all trouble and care. Then if you are accustomed to buy these luxuries, the profit side will prove itself most conclusively. "Fresh from my own frames" — you will enjoy making that statement — not to mention the superiority of their freshness.

Freshness



Section of Storage Pit with cypress frame and movable sash resting on the cast iron sills which cap the masonry walls.

A Few Suggestions and Some Facts

Suggestions

EVERY frame grower has particular views on soils, fertilizers, propagating and growing. Views that are the results of experience. There is no use trying to give you hard and fast rules for managing frames any more than for making money. It is results you are after! We will only attempt to get at some sort of basis for your start off. These brief suggestions that follow are from an old frame grower, and at least carry with them the plea of having given him success. You or your gardener friend may take exception to his methods. We would say, have long talks with your gardener friend, his way of doing things will possess the advantage of having given good results in your particular section of the country — a mighty important thing, too, by the way.

Books

There are many splendidly written books that go into every possible detail. Perhaps you would rather get your "how to" that way. We shall be glad to suggest such books as we feel will help you.

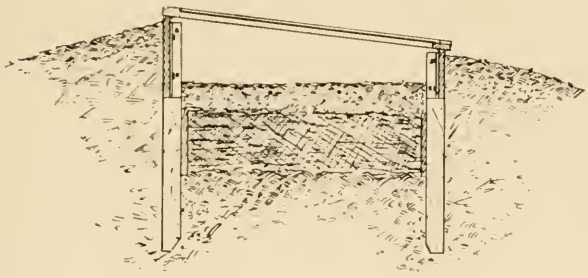
Heated Frames attached to the Greenhouse. — These frames have bricked up sides. At time of taking photo (Oct. 20), was used as a hot bed and filled with lettuce. Later on heat is supplied from the greenhouse boiler by hot water pipes around the frame, carrying them right through the winter. This snug arrangement of frames, greenhouse and stable, is owned by A. J. Morgan, of Larchmont, N. Y. For section detail of these masonry frames see page 9.

The Soil

START with the best possible soil, the freer from lumps, and the finer — the better the results. Do not think you can make any soil do, if made rich enough. Mere richness of soil will not compensate for other defects.

Fertilizer

Fertilize the prepared soil by forking it over and over a foot deep at least, and at the same time mixing with it thoroughly rotted manure. For direct seeding, sift on top one and a half inches loamy soil.



Section of hot bed showing sub frame, proportion of manure and soil, besides the banking for frost protection.

Hot Beds

How to Prepare Them

For the hot bed, two to two and a half feet of fresh horse manure for winter use, while for spring, half that depth.

Mix the manure with one-third leaves which keeps it from burning by too rapid fermentation and destroying its heating qualities at the start. Tramp down hard — leave sash off three days before planting and until a thermometer plunged into the mixture shows 90°; this allows the excess of ammonia to escape. Now place 9 inches of soil on top.

Slats

In transplanting young plants in the fall or spring when the direct rays of the sun are rather hot, slats are necessary to shade them. They serve not alone to prevent wilting but encourage the first growth to be with the roots and not shoot up all to leaves. Don't try to rush nature too hard for you will certainly reap a brand of leggy, shallow-rooted plants.

You can't use frames successfully without mats and shutters. The mat will unroll of itself, and the shutter is so light to handle, it's but a minute's work to effectually shut out the frost.

Ventilation

ON the matter of ventilation much depends, so make up your mind to give it careful attention. In general terms, keep the temperature as nearly even as possible — too hot is perhaps worse than too cold, as your plants then become soft and spindling. Strength is what you are after.

Banking

When the first continued freezing snap comes, bank the frames around the outside with a foot of manure, leaves or straw. Cover this banking with 3 or 4 inches of soil, which serves both to keep the possible litter in place and forms sort of a crust for added defence.

Mats

For violets, pansies, etc., you will also need the further protection of cold frame mats, which go over the top of the glass. These mats are made of strong burlap bagging, warmly lined with waste wool and cotton, which is quilted in to hold in position, while the ends are bound with strong canvas, making them exceedingly warm and durable.

Shutters

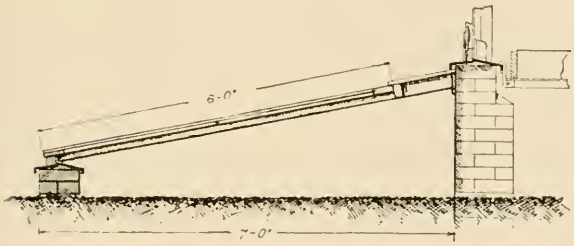
Upon these mats place what the gardeners call shutters. They tell us that 5/8-inch thick wood for the shutters is — "Plenty thick enough and makes them less bulky to handle."

Shutters

SO we make them of ⅝-inch narrow ceiling boards, grooved and tongued together, forming tight joints, while the cross binders, or cleats, hold together and strengthen them, making a very light but durable shutter. (Prices on page 22.) The mats fit snugly on the frames, keeping out the cold, while the shutters hold the mats in place and protect them from rain or snow. In cold frames the thing to prevent is freezing and thawing.

Manure Water

Most plants need plenty of encouragement, but care must be taken not to over feed (all a pure matter of judgment depending on the condition of your plants). Once every ten days is a safe direction. Keep the water off the leaves. Make in proportion of half a bushel of thoroughly rotted manure to a barrel of water.



Section of Frame Attached to Greenhouse at the southerly exposure and adapted to the growth of violets, lettuce, etc. It illustrates our cast iron sills capping the masonry; cypress frames and movable sash. That ice board at the top between the wall and sash catches the icicles that fall from the greenhouse roof. See exterior on page 6.

Some Vegetable Hints

To Start

THIS may be your first cold frame experience, so better start with some of the simpler things first, such as lettuce, radishes, Swiss chard, parsley, etc.

Lettuce

Lettuce planted every two weeks will give complete rotation of crop; or by planting at the same time Tennis Ball, Boston Market and Big Boston, they will rotate in order named. Take for instance a two sash frame, measuring 6 x 6 feet; it will accommodate 8 rows of lettuce one way and 8 the other —64 plants in all—yielding sufficient for a small family for a month. That is, two heads a day—two big, solid, crispy heads. Let's figure it out:—64 heads at 40 cents a pound, or 10 cents a head, would cost you $6.40, if bought of the grocer—nearly as much as you paid for two sashes.

Pay for Your Sash in One Crop

Now, if you had thought to sow radishes and a few of the small white onions between the rows, after the plants were a full inch high, you would have doubled the results without injury to the lettuce. It's just this kind of management and "recropping" as it were, that makes these frames a regular mine of good things. Radishes, Swiss chard, lettuce and parsley can be planted so as to begin producing where your garden leaves off, giving bountiful returns all through the winter and spring.

Here's a thorough business proposition showing sashes and hundreds of feet of frames. The owner makes a snug sum out of them each year and gets a lot of pleasure—not buyable—besides.

Frames to Help the Garden.—Here is the garden walk, fence and all! The frames are filled with tomatoes staked up, six to a sash and grown from seed sown early in February. With the aid of the hot bed and no transplanting shock to set them back, six weeks was gained. You can do the same with corn, melons and cucumbers.

Garden Planting Out

IN February, seeds for tomato plants, cauliflower, egg plants, etc., may be planted, giving good strong growths for the garden early in the spring.

Tomatoes

Some do not transplant the tomatoes at all, but just leave them right in the frame to grow there all summer. This will give you several weeks the start of the other fellow. There are at least 17 kinds of vegetables you can grow, but it's certainly worth while to devote at least one of your beds to tomatoes. "Every day you gain on tomatoes before August 1st, is clear profit, because no matter when a tomato plant begins to bear it will continue to do so until killed by frost."

For Thanksgiving and Christmas

Besides planting them from the beds in February there is a method of trimming and training them so each vine will give complete rotation. By this method you can have tomatoes along through Thanksgiving time and with good luck, even on Christmas day.

Asparagus and Rhubarb

Try placing portable frames over your asparagus or rhubarb early in the spring, it will give it a full month's start. After your first year's experience, try growing to fruit, cucumbers and melons.

Certain Flower Possibilities

THE flower gamut is so large and so alluring it is really hard to know where to start or stop. The very choicest foxglove and larkspur can be raised, with no end of pansies, violets, English daisies, polyanthus, primroses, and even chrysanthemums. If your tea roses are not hardy, store them in your frame all winter.

A Longer Season for Annuals

Perhaps you are especially fond of annuals and have always wished their season longer, then here is just your chance: plant in the frames any time between April 1st and 10th, China asters, stocks, marigolds, verbenas, fortunias, zinnias, shasta daisies, etc. Sow in shallow drills 8 inches apart. In a two sash frame eight drills can be made 8 inches apart, or a total of about 50 feet. Twenty-four seedlings may easily be raised in every foot — a total of 1200 plants. At the outside (allowing for so-called "choice packets"), your seeds didn't cost over $2.00. Rather bountiful returns for so small an investment. Some moist, dull day transplant them; give some to your neighbors, get your stoop and window boxes started.

Some to Give Away Besides

Concerning Cosmos

In this early starting phase, don't forget cosmos. It will save that unhappy experience of seeing your beautiful towering plants so full of bloom promise, blackened by an early frost — all your hopes shattered.

Help the Greenhouse. — These chrysanthemums are now about ready to take in the greenhouse for disbudding and forcing. Placed as the frames are in the L of the carriage house the protection is almost ideal.

Frames that take the place of the Greenhouse. This man devotes all his 8-sash frames to violets, and his family are never without them from October to April. The position, facing south, with a protecting fence and shrubbery at the north, is excellent. Note the manner of ventilating. When picture was taken, wind blew strongly from the west and tilting of sash in this manner also served as a protection. Shutters are leaning against the fence.

Violets

SUCCESS with violets is almost a "knack," but you may have just that "knack."

This sweet scented messenger of peace stands third in commercial importance; its season lasting through seven months, blooming from October to middle of April.

Violet Varieties

Prof. Galloway in his book on violet culture gives the following varieties:

We have named them in the order of their popularity. Single ones stand more cold.

DOUBLE	SINGLE
Marie Louisa	California
Farquhar	Princess de Galles
Imperial	Lux on-me
New York	La France
	White Czar
	Ransom's White

Pansies

We never think of pansies without likening them to the human face. They always appeal in a sort of personal way. The derivation from the French word penseé, meaning thought, seems most fitting.

The old folks name "heart's-ease" is a romance in itself.

More About Pansies

PANSIES are perennials, but are most productive as winter or spring annuals. The sowing of seed in cold frames during August will give you strong, ready to bloom plants for setting out early in April.

This photo taken February 22d. Seeds were sown in cold frames August 5th. This date for planting pansies in frames is quite the most satisfactory. You can transplant them to the hot beds in December and saucy faces will be in bloom for Christmas day.

Bulbs

Then there are bulbs; what a plucky lot these early spring friends are in their first color notes of cheer and promise; sort of ground rainbows as it were with promises that gusty March has spent its force. It is now that the cold frame will give you an amateur spring.

When purchasing your bulbs, avoid" mixed varieties;" they are, at the best, job lots so combined for ready disposal. Buy from dealers you know to be reliable —an experiment frequently means a year lost—and money.

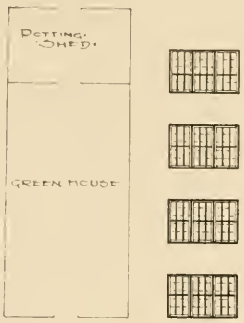
Their planting in cold frames middle of October gives full bloom last of February.

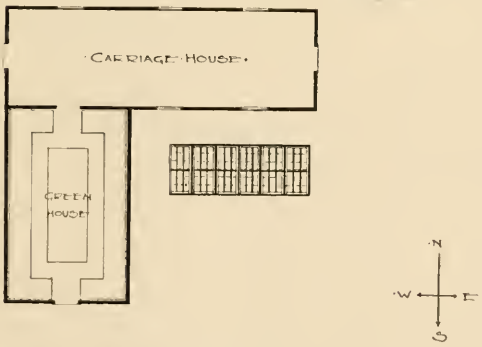
Or better yet plant in cold frames in regular bulb pots and cover with foot of dirt. Do this as soon as the bulbs can he bought in August and make successive plantings every two weeks up to November. Leave them undisturbed for at least eight weeks to make the much desired root growth. Cover with shutters frosty nights; when freezing comes put on sash also. When you unearth each planting you will find they have formed a perfect mass of roots and thrown up 3-inch white leaf sprouts; now place them in hot beds half submerging each pot. Shade the first week or till leaves are good green. For the final week remove to living room window where they will bloom abundantly giving you of their cheer and joyousness from Thanksgiving day till the middle of February or first of March.

Some Good Positions for Frames

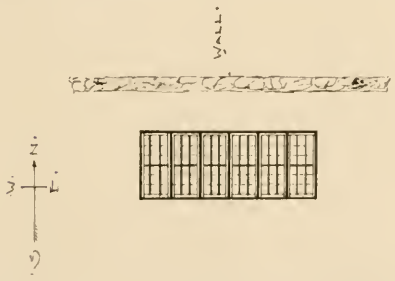
YOU will see that all the frames are placed free from the wall or building, giving space on both sides. This arrangement makes it more convenient to take care of them. However, lack of space often necessitated placing frames against wall or buildings as shown in the previous illustrations. Note also that the sash all slope towards the south giving the plants direct sunshine.

Four frames — both hot and cold — serving to help the greenhouse and the garden. Used in connection with one of our amateur houses. It's surprising what this man does with his frames and yet has a greenhouse.





An almost ideal arrangement protected on one side by the carriage house, the other by the greenhouse and having a southern and eastern exposure.



These frames are used to help the garden and are placed near the "garden wall" keeping off the cold north blasts.

A Table to Help

FLO

Variety	When to Sow Seed		When to Set Out Plants
	Hot Bed	Outdoors	
Asters (China)	March to May	May 10 to June 15	May 15 to June 15
Calendula (Pot Marigold)	April to May	May 1 to June 15	May 15 to June 15
Carnation (Marguerite)	April to May		May 20 to June 15
Chrysanthemum (Annual)	April to May	May 1 to June 1	May 15 to June 15
Cosmos (Early)	April to May	May 15 to June 1	May 15 to June 15
Dahlia	March to May		May 15 to June 15
Hollyhock	April to May	June 15 to Aug. 15	May 1 to June 15
Larkspur (Annual)	April to May	May 10 to June 15	May 15 to June 15
Nasturtiums	March to May	May 1 to June 15	May 15 to June 15
Pansy	April to May, July to Oct.	July to Oct.	April and September
Phlox	March to May	May to June	May 15 to June 15

FOR FLOWERS—This table holds good for outdoor planting in Massachusetts, Rhod Vermont and Maine it should be figured three weeks later. For Connecticut, New Yor All of the middle western states can be figured the same as New York, but all states sout ward. The depth to plant is not given, as such directions often are misleading. Small s times their size.

VEGE

Variety	When to Sow Seed		When to Set Out Started Plants	Depth See Should Be Sown
	Hot Bed	Outdoors		
Brussels Sprouts	April	May	May to June	⅛ inch
Cauliflower, Early	April to May	May	May	⅛ inch
Celery	April	May	July	⅛ inch
Cucumber	April	May to June	May to June	½ inch
Eggplant	March to May		June	¼ inch
Lettuce	March to April	May to August	May to August	¼ inch
Muskmelon	April to May	May to June	May to June	1 inch
Parsley	March to May	May	May	½ inch
Pepper	March to April	May	June	¼ inch
Radish	March to April	April to May		½ inch
Tomato	February to April	May	May to June	¼ inch

FOR VEGETABLES—The dates given in the table above apply to the vicinity of I be done three weeks later. This holds good for sowing out-of-doors or transplanting ou For Connecticut, New York, New Jersey and Pennsylvania it should be figured three v York, but all states south of Pennsylvania should be figured twelve days in advance for

You in Spring Planting

ERS

Distance to Transplant	Height of Plants	Season of Bloom	Color of Bloom
9 inches	1 to 3 feet	July to October	White, pink, red, lavender, purple, yellow
6 inches	9 inches	June to October	Yellow, orange
6 inches	1½ feet	August to October	White, pink, red, yellow
6 inches	1½ feet	July to October	White, yellow, deep red
12 inches	2½ feet	July to September	White, pink, red
3 feet	4 feet	August to October	White, yellow, pink, red
15 inches	5 to 7 feet	August	Red, white, yellow, pink maroon
6 inches	15 inches	June to September	Red, white, pink, blue
6 inches	1 and 10 feet	June to October	Yellow, red, orange, pink, crimson
6 inches	6 inches	April to October	All colors
6 inches	1½ feet	July to October	Red, white, pink, yellow

nd and the southern part of New Hampshire. For the northern part of New Hampshire, w Jersey and Pennsylvania it should be figured three weeks ahead of the time given here. 'ennsylvania should be figured twelve days in advance for every one hundred miles south- hould not be covered at all. The rule for the larger seeds is to bury them to a depth four

ABLES

Distance Apart in the Row	Distance between the Rows	Distances When Planted in Hills or Drills		Amount of Seed Required	Season of Crop
		Between Drills	Between Hills		
18 inches	2 feet			1 ounce for 2000 plants	October
24 inches	4 feet			1 ounce for 2000 plants	July
10 inches	3 feet	12 inches		1 ounce for 2000 plants	Sept. through Winter
			4 feet	3 plants in hill	Aug. to Oct.
8 inches	24 inches			1 ounce for 1000 plants	Aug. to Sept.
12 inches	18 inches	18 inches		1 ounce for 120 feet	June to Oct.
			5 feet	10 seeds or 3 plants in hill	Aug. to Oct.
8 inches	15 inches			1 ounce for 150 feet	June to Oct.
2 feet	3 feet	3 feet		1 ounce for 2000 plants	Aug. to Sept.
2 inches	10 inches	12 inches		1 ounce for 100 feet	May to Oct.
3 feet	3 feet	3 feet	3 feet	1 ounce for 1000 plants	Aug. to Oct.

and all the southern part of New England. In Northern New England, planting should ors. For starting seeds in the house, this table holds good for the entire eastern states. head of Boston time. All of the middle western states can be figured the same as New ne hundred miles southward.

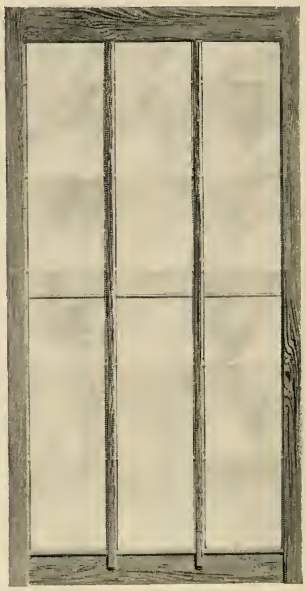
Sash and the Way We Make Them

SASH are regular stock size, 3 x 6 feet, 1½ inches thick, spaced for 10-inch glass.

The frame is made from Red Gulf Cypress, free from sap, consisting of top and bottom rails, each 4 inches wide, side stiles 2½ inches, bars 1¼ inches thick.

Stiles, top rails and bars are neatly beveled on under side, admitting extra light.

Bars tenoned at both ends and mortised into rails, the latter into the stiles.



This is the Sash in all its strength of make and lightness to handle.

A round iron bar runs through the sash bars into side stiles tying the sash through the center, and supporting the wood bars. All joints are perfectly fitted, white leaded when put together, and securely tied with special barbed steel dowel pins.

Edges of sash are fitted to exact sizes so no further carpenter work or painting is required. Painted with two coats of pure white lead, and glazed with double thick glass, bedded in special greenhouse putty and then carefully cleaned off. Weight 40 pounds; light to handle.

Made in every way just the best we know how.

Prices of These Sash

THE extensive use of our sash by private gardeners, florists and parks, speaks a strong word in their favor.

Sash

Sash, 3 x 6 feet, finished and painted complete as described, $3 50

Sash, 3 x 6 feet, with finished edges, unglazed, painted one coat, 1 40

Sash, 3 x 6 feet, with finished edges, unglazed and unpainted, 1 25

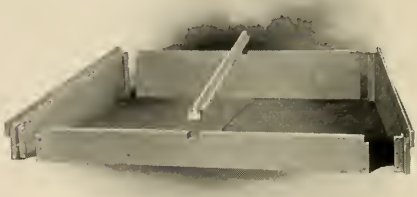
Prices include crating and delivery f. o. b. our factory. For terms see page 24.

Freight Allowance

All orders will be promptly filled. We make a freight allowance on orders of ten or more Sash, with or without Hot Bed Frames, to your R. R. Station, but not exceeding forty cents per hundred pounds. This rate will cover freight to most points in the Eastern and Middle States.

Here are the Sash thoroughly crated for shipment and sure to reach you in good condition.

The Frames and the Way We Make Them



Here is a frame in position ready to bolt up

How Made

HOT bed frames are for regular 3 x 6 feet sash. We make our frames of 1¼-inch thick, red Gulf Cypress, free from sap.

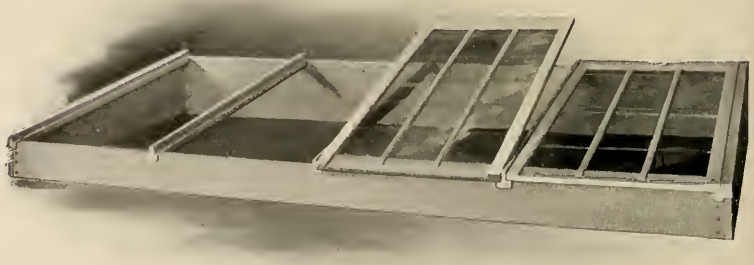
Depth of frame in front 8 inches, at back 16 inches. The corners joined together by angle iron cleats, securely bolted to sides and ends.

Rails between sash 3 x 3 inch Cypress, rabbetted for sash, grooved for drip and dovetailed into the sides.

Ease of Set Up

The angle iron in the corners make a strong, durable frame, while bolting and dovetailing render it unnecessary to employ a mechanic to set them up or take down. Any one who can bolt a thing can do it. This feature makes it convenient for shipment or storage when not in use.

Frames are carefully finished and painted with two coats of pure white lead. Packed knocked down.



A Four Sash Frame. — Bolted up ready for business — the other two sash not out of crate yet

Prices of These Frames

Frames

Frames for two 3 x 6 feet sash (without sash), finished and painted, complete as described, each	$ 7 50
3 Sash Frames	9 00
4 Sash Frames	10 50
5 Sash Frames	12 00
*Partitions, extra	1 50

Prices for other sizes of Frames given on application.

We keep these Frames, of the size above mentioned, constantly on hand.

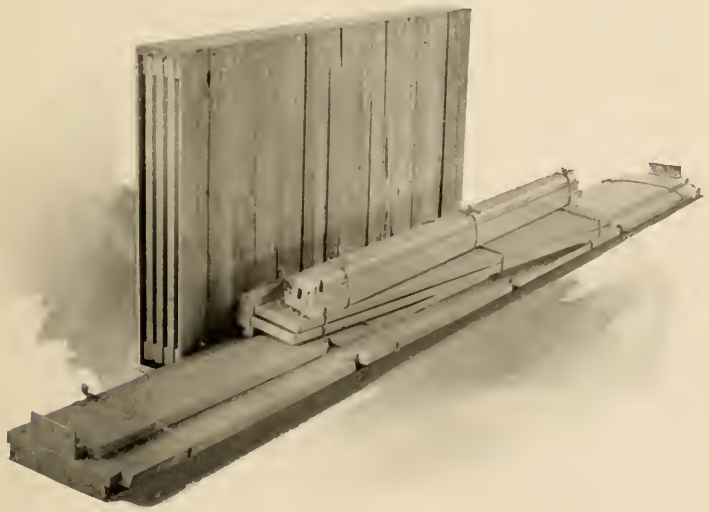
*Partitions can be placed under any rafter, making as many divisions as desired.

Sub Frames

Sub Frames are made 18 inches deep of 2-inch lumber and strong corner posts.

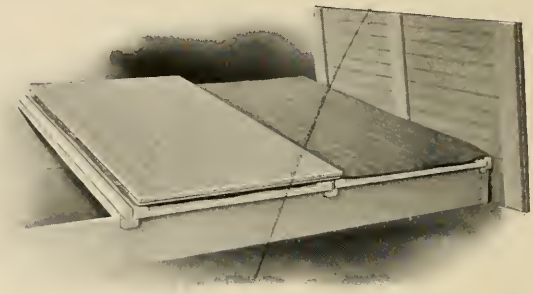
For 2 Sash, each	$ 6 00
For 3 Sash	7 50
For 4 Sash	9 00
For 5 Sash	10 50

F. O. B. our factory. For terms see page 24.



Four Glazed Sash crated thoroughly to protect glass; and the frames knocked down, packed ready to ship.

Shutters, Mats and Slats
For Hot Beds and Cold Frames



When Jack Frost is lurking around put on your mats and shutters. This shows the mat on, and one shutter already in place.

Shutters

SHUTTERS are 3 feet wide by 6 feet long, constructed of ⅝-inch material, tongued, grooved and closely fitted to keep out rain. Suitably strengthened by cross binders or cleats and painted two coats. These shutters are light to handle, strong and well made and used extensively by the leading gardeners.

Price, each	~~$1 75~~
F. O. B. our factory.	2 75

Burlap Mats

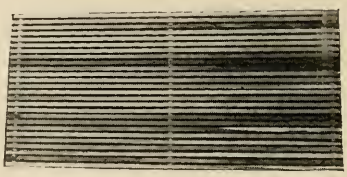
Mats are made of strong burlap bagging, warmly lined with waste wool and cotton which is quilted in to hold position. They are excellent substitutes for straw mats, being much warmer, because they lay closer to the sash. They are more easily handled, less bulky, do not harbor mice or other vermin.

3 x 6 feet for single sash	$1 00
6 x 6 feet for 2 sash	1 25

Slats

Slats are 3 feet wide by 6 feet long, and made of evenly spaced cypress pieces ¾-inch wide, ¼-inch thick, each held in place and braced by three cross binders ⅞-inch square which are cut in to receive each piece and then securely fastened with wire nails. Slats made in this manner although light are of great strength and always continue to keep their shape.

Unpainted	$1 00
Painted	1 25



The all Cypress slats

Just to show you that this cold frame or hot bed matter is one of tremendous possibilities and not a mere fad or hobby for a season or so.

Frames and sash at a private estate
Jamaica Plains, Mass.

This "frame yard" has hot beds, cold frames, and storage pits. Not an unusual instance of their importance in adding greatly to the greenhouse results

Made deeper than usual, filling the triple use of hot beds, cold and storage frames. These are at Forest Hill Cemetery, Mass.

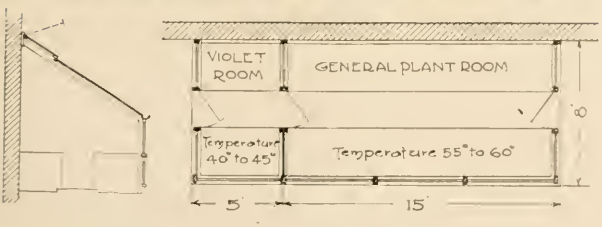
Concerning the Matter of Payments

When parties are not rated, and we have not had the pleasure of doing business with them before, there is necessarily considerable time taken in looking up their credit which delays getting the order started in the factory. We make a discount of 2% for cash. When sending order without cash kindly give us a satisfactory business reference.

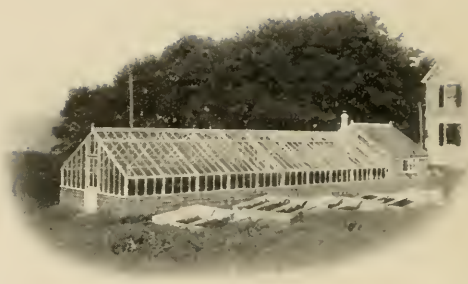
The Lean-to House

HERE is an outside and inside view of our lean-to greenhouse, complete with plant beds, ventilating and heating apparatus, etc. Simple in design and inexpensive, but full of possibilities—and a whole lot of fun besides.

The way owners of these lean-to greenhouses get to doing some of the big things is surprising. Starting out with the idea of harboring their favorite house plants, raising a few of the choicer things, and perhaps some lettuce, radishes and tomato plants for early setting out, it ends in their getting into roses, carnations, chrysanthemums; tomatoes, melons and cucumbers from seed to fruit for February delectation. Some have even grown most exquisite of orchids. We build these small houses with all the care and particularity that goes into the larger ones.



CROSS-SECTION GROUND PLAN



Two Compartment Amateur House

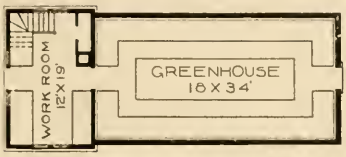
HERE is just the sort of house an amateur wants in which to grow numerous flowers, fruits and vegetables. Dividing it in two compartments gives two temperatures to meet the varied requirements of different plants, greatly increasing the kinds it is possible to grow.

This Amateur House, although cheaper than the Sectional Iron Frame Construction, is substantially made with best of materials and strengthened by numerous iron members. It is an every-way practical house, equipped with ventilating apparatus, heating system and three rows of cypress benches.

PLAN

SECTION

As it looked the day before Easter. That side bench is filled with fruit laden tomato vines, that have been bearing a full six weeks.



One and Two Compartment House

Sectional Iron Frame Construction

THIS snug little lay out is on a private estate at Irvington-on-Hudson, N. Y.

In its terraced position above the garden with the background of poplar trees and buildings beyond, the effect is most charming.

It is surprising the range of plants that can be grown in a single compartment house! Perhaps it requires a bit more attention in selecting those best adapted to a general temperature, but the reward in bountiful bloom and appetizing vegetables, amply repays it.

As it looked when used for a general assortment. Even a few orchids were included.

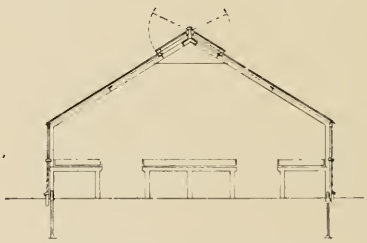
This spring they added another compartment especially for carnations.

Last October this house was filled around the side beds with strong, stocky carnations just showing bud; chrysanthemums, the cluster kinds in plumey whiteness, and those stately, resplendent yellow ones with single blooms a full 5 1/2 inches across; in the center beds two large, thrifty, branching variety rubber plants; some half dozen potted begonias with a profusion of pink flower clusters; numerous other potted plants, besides several strings of smilax, a couple of palms and a vigorous asparagus fern.

The old Scotch gardener said he raised all his violets, pansies, lettuce, radishes and spinach in the cold frames, just below in the garden. This use of frames really added a cool compartment to the greenhouse and permitted the exclusive use of the house for plants demanding higher temperatures.

After some of the plants had spent themselves, he expected to sow direct from seed a few tomatoes and cucumbers on the east side beds. His method of trimming off all laterals induces the tomato plants to yield clusters of fruit at each joint, in full rotation. He also hoped to force some azaleas and lily bulbs for Easter. But this is only a glimpse of what you can do with one of these houses.

Now a word on how it is built: This sectional iron frame construction of ours is in brief the eliminating of



A section showing iron rafters and foot pieces; the cypress benches and two lines of ventilation at the ridge.

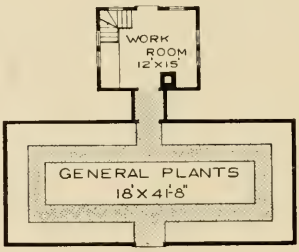
every possible piece of wood and substituting for it steel. This adds great strength and durability while making the framing members so light that all possible sunshine reaches your plants. Cypress being the most enduring of wood it is used where necessary in the house.

All glazing is done on wood, guaranteeing you against the expensive breakage of glass otherwise resulting from expansion and contraction of the iron when in direct contact. The steel rafters are bolted to cast iron foot pieces imbedded in concrete, making a lasting and much cheaper foundation than a masonry wall. It is an every-way enduring, splendid piece of construction. For its further description send for our new catalog "Greenhouses As We Build Them."

Just as crisp as they look—and then the fun of having them in January right from your own greenhouse.

Curvilinear House

A PLEASING example of a small curvilinear greenhouse, about 18 x 42 feet, with side entrance adding an attractive feature, and providing an entrance from a drive or walk parallel to the greenhouse. A small potting room is joined at the back by a narrow glazed passage. This house is used for general purposes — that is, growing tropical plants, potted flowers and starting plants in the spring for the garden and grounds. With the heating plant centralized in the boiler-room at the back, and the gables of the house built vertically, the addition of a wing at either end for growing cut flowers, vegetables, etc., would be simple and inexpensive. Two small wings thus added would form a perfectly balanced scheme with three compartments.



Some Other Things We Do

BUILD greenhouses for **the amateur** from the modest lean-to up to the one with two or more compartments for growing flowers in different temperatures. These houses have a snug little potting room for work bench, boiler, etc.

Then the **Greenhouses for Private Estates** from the simple palm house and greenhouse to the more elaborate schemes with palm house and houses for roses, carnations, gardinias, peaches, grapes and so on through the series of a complete range.

Conservatories meeting all the demands from those of simple dimensions to the elaborate ones forming a beautiful adjunct to the general architectural harmony.

Sun Parlors in all their allurements, not only a place to "sun in" but veritable living rooms, where, surrounded by the luxuriance of the tropics, the fragrance of out of season blossom, you can drink tea with your friends or have the after-dinner cigar and paper.

For the **Commercial Growers** the various types of houses used by growers for the market.

Ventilating Apparatus as used in greenhouses.

Boilers and Piping for the perfect and economical heating of greenhouses.

Sash Operating Apparatus for opening and closing long or short runs of sash in banks, public buildings, factories, power plants, etc.

We will gladly send catalogs or illustrations showing forth any or all of these subjects to your convincement

Lord & Burnham Co.

Greenhouse Designers and Builders

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